Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

viz. the different depths to which the air bubble may be moved by the atmospherical changes; this, however, is rather advantageous than otherwise, since it encreases the motions, without altering their proportions.

The principle of showing the changes of the atmosphere, by a bubble of air under water, is not new, as this author seems to suppose; it was adopted by a Mr. Caswell, Dr. Hook, and others, early in the last century. The hint was perhaps taken from the machine of dancing figures, or little men, described in Gravensend's Elements of Natural Philosophy (see vol. 1st. art. 462).

These little glass images are made hollow, and specifically lighter than water, and each has a small hole in one of its feet, by which water may enter; they are immersed in a tall glass receiver, nearly filled with water, and made air-tight, by means of a flaccid bladder tied over the top; by pressing on the bladder with the hand, the air under it is reduced to less space, the surface of the water will thereby be compressed, and water will be forced into the little figures, through the hole in their feet, which will cause them to descend, and when the pressure of the hand is removed, they will again rise, &c. The principle seems better adapted to a toy of this kind, than to a barometer.

A great variety of constructions of this instrument, have been from time to time invented, and most of them have had for their object the enlargement of the scale, or range of motion of the mercury, in the upright tube, from three inches (the usual range in this country) to almost any indefinite length.

Hence the contrivances of the diagonal barometer, and wheel barometer, &c. but it has been found from experience, that inaccuracy, arising from friction, &c. has always been increased in the same proportion, as the scale has been lengthened, and therefore they have all given place to the upright *Torrecellian* tube, in every case where great accuracy is required, such as measuring the height of mountains, &c. for with the late improved constructions, if well executed, a vernier scale can be applied, which will determine the heights of the mercury to the 1000th part of an inch: the use of which would be totally impracticable with any construction, where the changes are shown by a stem of glass, or of metal, rising out of water.

But there are other strong reasons why this instrument cannot be an accurate barometer.

1. Late experiments have proved, that water is at its greatest degree of condensation, at the temperature of 42½ degrees on *Fareinheit's* scale: therefore supposing it practicable, to adjust the proportions of air, and water in the small ball, perfectly to each other, at a temperature above 42½ degrees (which is very doubtful, as no means are pointed out for this purpose) yet the same adjustment would not serve for a temperature below the same degree: because the two qualities of the hydrometer and thermometer, which are opposed to each other, where the temperature is *above* 42½ degrees would coincide when *below* it; consequently a greater degree of cold would cause the bulb to sink, without any additional pressure of the atmosphere.

2. Air that is long confined under water, is found to change its elasticity, either from part of it being decomposed, or mixing with that contained in the water, and lastly the instrument must be totally useless during frost. If these remarks are well founded, it follows, that all this *airy* structure, which has cost the author so much pains to dedicate to fame, "vanishes like the baseless fabric of a vision and leaves not a wreck behind."

C. Fergus, July 30, 1809. MECHANICUS.

For the Belfast Monthly Magazine.

ON PROVIDING EMPLOYMENT FOR THE INDUSTRIOUS POOR OF THE CLASS OF FIELD LABOURERS.

THE laudable endeavours which have been made in Belfast for the suppression of mendicity demands the gratitude of all its industrious inhabitants; and should be furthered by them in every possible way; the writer of this paper therefore with this view begs leave to communicate some observations on this subject which occured to him a considerable time ago, and which seem as yet to have escaped notice of others; and to propose a method of rendering the plan more universal and effectual for the abolition of mendicity, of which an account was given in the eleventh number.

The institutions which have hitherto been established for affording employment to the poor, have universally been for the preparation of various manufactures. Those who are unacquainted with the nature of manufactures are not sufficiently aware of the effect produced in them by the dexterity of the workman, from a sort of slight of hand, which can only be acquired by long practise, and, by many, in youth alone. The body of the manufacturer in a manner becomes formed for his work; the muscles most in action in it acquire a degree of strength and mobility, which no efforts of a beginner can attain, and which, after a certain age, it is next to an impossibility to acquire; for this reason the employment of the labouring poor in manufactures has ever seemed to the writer a misapplication of their labour; except in those cases where they had been brought up to them in their early years; and also that a waste of materials was caused at the same time by their unskilfulness, while the finished goods being inferior in quality to those produced by good workmen, could neither command so good a price or so ready a market. The part of those institutions which relate to the instruction of youth in manufacturing various articles of utility may seem to be free from the chief of these objections; but it is evident that youth would learn their trades more completely as apprentices to masters in the usual way, than in the precincts of a work-house, and that, therefore, the latter plan should be only used as a supplement to the former. In many trades, masters are so sensible of the advantages of a choice of workmen that small fees will induce them to take as many apprentices as they can employ, and it would therefore be an object worthy the consideration of the proposed society to complete whether they could not provide for a greater number of poor children with the same funds by apprenticing them to approved masters, than by teaching them in a work-house: in this account the saving of expence in buildings, and of capital in manufactures having its due estimate, there appears little doubt that the former method would be cheaper as well as more eligible, as well for the reasons stated as for many others that may be suggested. In establishing manufactures as a means of providing for the poor, a point of material importance in the business seems taken for granted without any sufficient warrant; which is, that there is such a ready market for the articles to be produced, that the number of workmen may be encreased to advantage; but a little inquiry will show that this is far from being the case; the successful policy of Napoleon has so effectually cut off the demand for British manufactures on the Continent, that there is a great surplus on hands, of every kind of them, which will be poured into this country at a price sufficiently disadvantageous to our own manufacturers, without adding to the evil by bringing articles of a forced nature into competition with them. The remedy for this evil, which has been most tried, is in fact but an aggravation of it, which is to force a sale for articles brought thus to market beyond the demand, by appeals to the compassion of the public. It requires but small penetration to see the error of this system, for it is plain that as much of those articles as is purchased from the charitable institution, so much less must be purchased from the regular manufacturers, who being thus obliged to diminish the quantity they are used to furnish, must cease to give employment to a proportional number of hands, who will thereby be thrown on public charity for a subsistence, and surely that expedient which evidently encreases the disease it was intended to cure, demands little to prove its inadequacy and fallaciousness.

Belfast has one advantage in providing for the female part of its poor, which few other places possess, which is that from its being in the centre of the linen manufacture, the most of the women of the lower orders, have learned to spin linen yarn sufficiently well to earn a subsistence with a little assistance; some of the male poor may also be found who know how to weave, but it is probable that more good might be done by hiring looms to the latter, and wheels to the former, with a loan of a small matter to purchase materials for work, at a low interest with an open for a final purchase of the implements by a small weekly deposit, which method would prevent fraudulent people from taking the implements in order to sell them, instead of using them for work, which it is to be feared would be too often the case if they were given free of expense to those who applied for them; but though more might be employed in Belfast without injury to the regular manufacturer than in most other places, yet still there is a very numerous class of the poor who have only been accustomed to field labour; which any plan of manufacture could employ but in a wasteful manner, and with much misapplication of labour, for the reasons before stated.

To point out a method of providing employment for people of this description is the chief object of this paper, and which at the same time that it would effect this purpose, would also facilitate the maintenance of that portion of the poor, who would be employed to greater advantage in the workhouse in branches of manufacture, at which *they had been accustomed to work*, and at which *they had attained considerable skill.*

Those desirable objects, it appears to the writer, might be easily obtained, by renting ten or more acres of land, within a few miles of the town to be cultivated entirely by manual labour in garden culture, by such of the paupers as had only been used to field labour, assisted by such of the others, who from unskilfulnes or any other cause, could not be employed at their trades to advantage, and by those of them whose health might be benefited by an occasional change from sedentary confinement, to the envigorating and healthful occupations of horticulture in the open air,

A considerable portion of this ground should be of course devoted to the culture of potatoes, for the food of the people; carrots, turnips, and cabbages should be also raised both for this purpose and for sale; together with onions, pease, beans and such other vegetables as would fetch the best price at the market of Belfast for the surplus after the institution was supplied.

Perhaps other vegetables of a different nature might be cultivated to advantage in the same manner. Weld, woad and other articles for the use of dyers might thus be raised, and probably after a time, when money enough could be spared for the purchase of poles and other necessaries, hops might also be grown to considerable profit, which many experienced judges think, would thrive well in this country, and would certainly escape much of the ravages from insects, which those grown in England experience, as many of the insects most destructive to hops are found but in trifling numbers here. Hogs might also be fattened on the offal of the garden to considerable advantage.

The articles of culture would of course be determined by a committee of the directors of the institution for the relief of the industrious poor, and under them a skilful gardener should be employed to direct the detail of the necessary operations.

It is by no means necessary that the ground should be very close to Belfast; some situation on the canal would be the best for it, on account of the facility it would afford for procuring manure, and for the conveyance of articles to market at a cheap rate, and any place between Belfast and Lisburn, where ground could be procured on the lowest terms, would be sufficiently near for the purpose.

In many charitable institutions large sums have been expended on buildings, which might have been laid out to much better advantage, in providing for a greater number of those who were the proper objects of it. The sums which have been lavished in this way at Greenwich Hospital, at Guy's, and Bartholemew's Hospitals, in London, are so great, that the reflection must deprive most to whom it might occurr, of the pleasure which the magnificence of those buildings would otherwise occasion. After a necessary attention has been paid to durability, it is evident that cheapness of construction in buildings of this nature, should be considered as a primary object. It would therefore be worth while to determine, whether slated cottages could not be raised at a cheaper rate, for the accommodation of a greater number of people at the rural establishment proposed, than any other species of building; and if a number of stories, should, on the contrary, be proved cheaper, then to determine whether much might not be saved by laying the floors with plaster (gypsum) instead of board, as is practised in Derbyshire and Staffordshire; (for which materials might be obtained at a cheap rate from the gypsum quarries in the neighbourhood of Belfast) or to lay them with large square tiles, in the same manner as is done at Paris. It would also be worth consideration, whether cast iron might not be substituted for wood to advantage, in the principle supports of the roofs, while timber is at the present high price. The opinion of many good judges is in favour of this measure, and a very ingenious gentleman of Birmingham (Mr. Norton) has lately taken a patent for a mode of doing this, which he asserts he can prove to be cheaper than constructing a roof of wood.

Enough has been written on the subject of food for the poor, by Sir Benjamin Thomson (perhaps better known by the name of Count Rumford, as preferring the latter title, though for reasons which are not very obvious) to render any thing on this head almost superfluous. It may not, however, be amiss, to remind the gentlemen who may have the management of such an institution, of an error which was made on this point at the House of Industry in Dublin, in feeding people on wheaten bread, who had all their lives before been used to live on oaten bread, or potatoes instead of it. Many physicians are of opinion that potatoes do not afford sufficient nourishment by themselves; but granting this, which however seems very doubtful, it is certain the deficiency might be made up in a much cheaper manner, by soups, prepared by some of the excellent receipts of the above author, or perhaps by a proper allowance of milk, than by any quantity of wheat bread, at its usual price.

Many particulars would have to be considered in detail, besides those mentioned, in carrying a plan of this nature into execution; but the gentlemen who would have to superintend the business here, on account of their superior local knowledge, could best arrange matters of this nature; and indeed in this respect Belfast has considerable advantage; for in few towns in the kingdom can a greater number of liberal and enlightened gentlemen be found, more capable of directing such an institution in the best manner.

It might appear after this assertion, that advice to gentlemen of this description is superfluous, and what is here written might be spared; but there is no certainty that the same thoughts will occur to the best informed minds, as might to others, perhaps not so well prepared; and perhaps something may occur in those pages, which may be found of essential utility, when properly matured by competent judges. At all events, what has been written, proceeds alone from a desire to do good; and as it was well intended, it is hoped it will be so considered. J. W. B.

Belfast, Sept. 1809.

For the Belfast Monthly Magazine.

SURRY INSTITUTION.

THIS Institution is for the same purposes as the Royal Institution of London: lectures are given at the buildings belonging to it, on various branches of science and literature with considerable ability, and a good library is provided for the use of the members.

Institutions of this nature are becoming every year more general in England, and promise fair to diffuse a taste for the sciences, which no doubt, will, in many instances, produce that degree of information capable of extending and improving the general state of knowledge. The example of England, will, we hope, be followed by Ireland in this respect. It will indeed be in some degree necessary; for the common forms